

Features

- Fast Switching Speed
- Low Forward Voltage: Maximum of 0.715V at 1mA
- Fast Reverse Recovery: Maximum of 4ns
- Low Capacitance: Maximum of 2pF
- Surface Mount Package Ideally Suited for Automated Insertion
- For General Purpose Switching Applications
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

- Case: SOD123
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish annealed over Alloy 42 leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208 ^{Ⓔ3}
- Polarity: Cathode Band
- Weight: 0.01 grams (approximate)

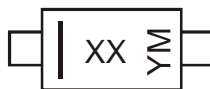


Ordering Information (Note 4)

| Part Number | Qualification | Case | Packaging |
|---------------|---------------|--------|--------------------|
| BAV16W-7-F | Commercial | SOD123 | 3,000/Tape & Reel |
| 1N4148W-7-F | Commercial | SOD123 | 3,000/Tape & Reel |
| 1N4148WQ-7-F | Automotive | SOD123 | 3,000/Tape & Reel |
| 1N4148W-13-F | Commercial | SOD123 | 10,000/Tape & Reel |
| 1N4148WQ-13-F | Automotive | SOD123 | 10,000/Tape & Reel |

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
 2. See <http://www.diodes.com> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
 3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
 4. For packaging details, go to our website at <http://www.diodes.com>.

Marking Information



xx = Product Type Marking Code (T6, T4)
 YM = Date Code Marking
 Y = Year (ex: Z = 2012)
 M = Month (ex: 9 = September)

Date Code Key

| Year | 2001 | 2002 | 2003 | | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|------|------|------|------|-------|------|------|------|------|------|------|------|------|------|
| Code | M | N | P | | Z | A | B | C | D | E | F | G | H |

| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Code | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | O | N | D |

Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

| Characteristic | Symbol | Value | Unit | |
|---|----------------------|-------------|------|---|
| Peak Repetitive Reverse Voltage | V _R RM | 100 | V | |
| Working Peak Reverse Voltage | V _R WM | | | |
| DC Blocking Voltage | V _R | | | |
| RMS Reverse Voltage | V _R (RMS) | 71 | V | |
| Forward Continuous Current | I _{FM} | 300 | mA | |
| Non-Repetitive Peak Forward Surge Current | I _{FSM} | @ t = 1.0μs | 2.0 | A |
| | | @ t = 1.0s | 1.0 | |

Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|---|-----------------------------------|-------------|------|
| Power Dissipation (Note 5) | P _D | 400 | mW |
| Thermal Resistance Junction to Ambient Air (Note 5) | R _{θJA} | 315 | °C/W |
| Operating and Storage Temperature Range | T _J , T _{STG} | -65 to +150 | °C |

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

| Characteristic | Symbol | Min | Max | Unit | Test Condition |
|------------------------------------|--------------------|-----|-------|------|--|
| Reverse Breakdown Voltage (Note 6) | V _{(BR)R} | 100 | — | V | I _R = 1.0μA |
| Forward Voltage | V _{FM} | — | 0.715 | V | I _F = 1.0mA |
| | | | 0.855 | | I _F = 10mA |
| | | | 1.0 | | I _F = 50mA |
| | | | 1.25 | | I _F = 150mA |
| Peak Reverse Current (Note 6) | I _{RM} | — | 1.0 | μA | V _R = 75V |
| | | | 50 | | V _R = 75V, T _J = +150°C |
| | | | 30 | | V _R = 25V, T _J = +150°C |
| | | | 25 | | V _R = 20V |
| Total Capacitance | C _T | — | 2.0 | pF | V _R = 0, f = 1.0MHz |
| Reverse Recovery Time | t _{rr} | — | 4.0 | ns | I _F = I _R = 10mA, I _{rr} = 0.1 x I _R , R _L = 100Ω |

- Notes: 5. Part mounted on FR-4 PC board with minimum recommended pad layout, which can be found on our website at <http://www.diodes.com>.
6. Short duration pulse test used to minimize self-heating effect.

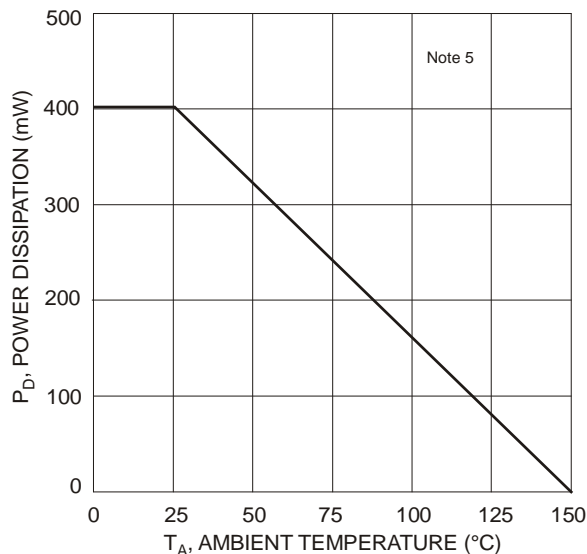


Figure 1 Power Derating Curve

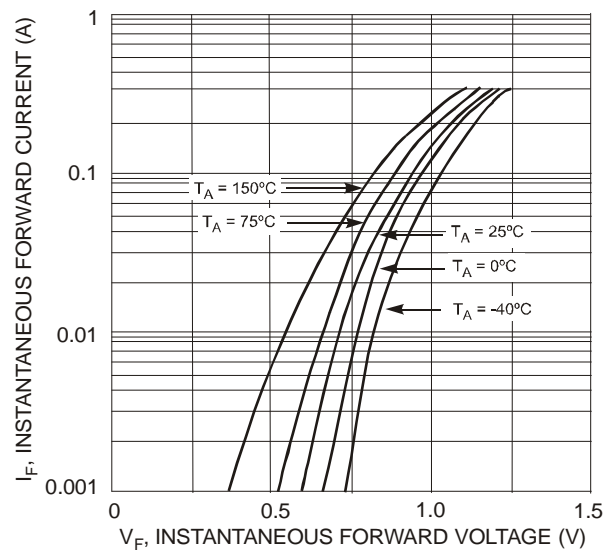


Figure 2 Typical Forward Characteristics

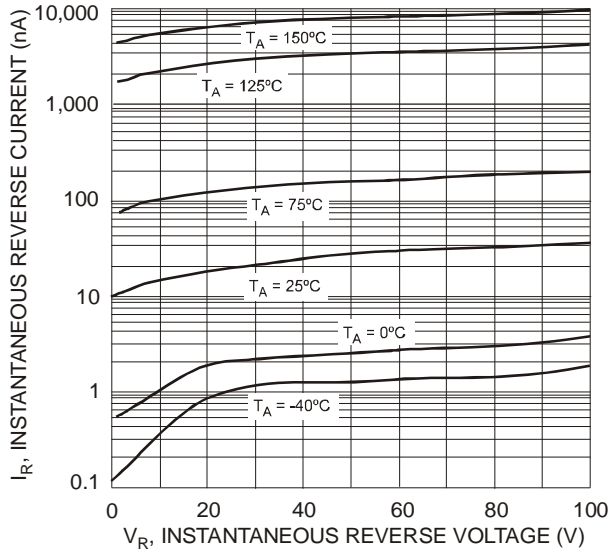


Figure 3 Typical Reverse Characteristics

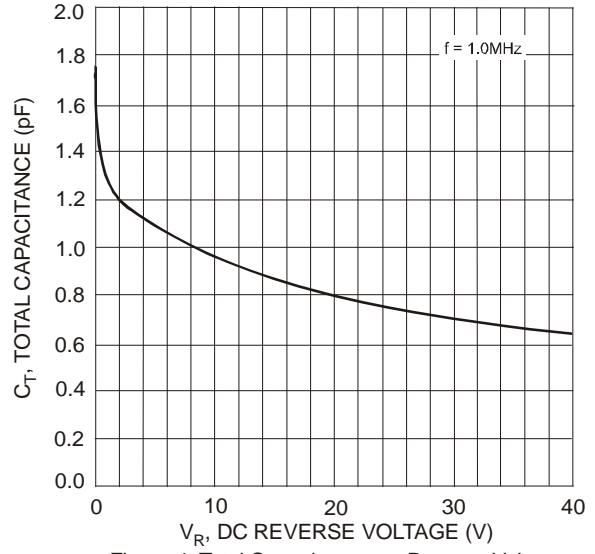
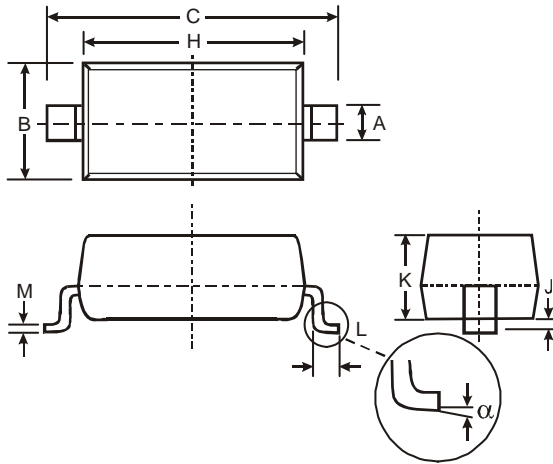


Figure 4 Total Capacitance vs. Reverse Voltage

Package Outline Dimensions

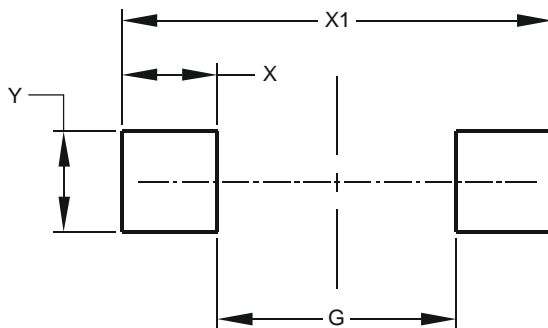
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



| SOD123 | | |
|----------------------|----------|------|
| Dim | Min | Max |
| A | 0.55 Typ | |
| B | 1.40 | 1.70 |
| C | 3.55 | 3.85 |
| H | 2.55 | 2.85 |
| J | 0.00 | 0.10 |
| K | 1.00 | 1.35 |
| L | 0.25 | 0.40 |
| M | 0.10 | 0.15 |
| α | 0 | 8° |
| All Dimensions in mm | | |

Suggested Pad Layout

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.



| Dimensions | Value (in mm) |
|------------|---------------|
| G | 2.250 |
| X | 0.900 |
| X1 | 4.050 |
| Y | 0.950 |

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